

WHAT IS CLAIMED IS:

1. A hematopoietic growth factor delivery composition, the composition comprising:

a hematopoietic growth factor capable of stimulating hematopoietic cell activity when administered to a host;

a first biocompatible polymer and a liquid vehicle in which the first biocompatible polymer is at least partially soluble at some temperature, the first biocompatible polymer interacting with the liquid vehicle to impart reverse thermal viscosity behavior to the composition over at least some temperature range, so that the composition is in a lower-viscosity form when the temperature of the composition is at a first temperature within the range and the composition is in a higher-viscosity form when the temperature is at second temperature within the range that is higher than the first temperature; and

a second biocompatible polymer being a protective colloid that inhibits the dissolution into aqueous liquids of the first biocompatible polymer at least when the composition is in the higher-viscosity form.

2. The hematopoietic growth factor delivery composition of Claim 1, wherein the first temperature is lower than 20 °C and the second temperature is higher than 25°C.

3. The hematopoietic growth factor delivery composition of Claim 2, wherein the first temperature is in a range of from 1°C to 20°C and the second temperature is higher than 25°C.

4. The hematopoietic growth factor delivery composition of Claim 3 wherein the second temperature is 37°C.

5. The hematopoietic growth factor delivery composition of Claim 4, wherein the higher-viscosity form has a viscosity that is at least 3 times as large as the viscosity of the lower-viscosity form.

6. The hematopoietic growth factor delivery composition of Claim 1, wherein the lower-viscosity form is a flowable medium and the higher-viscosity form is a gel.

7. The hematopoietic growth factor delivery composition of Claim 2, wherein the second biocompatible polymer has an affinity for water such that the second biocompatible polymer inhibits deterioration of the gel by invasion of the composition by aqueous biologic fluids when the composition is administered to a biologic host.

8. The hematopoietic growth factor delivery composition of Claim 1, wherein the first biocompatible polymer is a block copolymer.

9. The hematopoietic growth factor delivery composition of Claim 8, wherein the block copolymer comprises at least one block of a polyoxyalkylene.

10. The hematopoietic growth factor delivery composition of Claim 9, wherein the polyoxyalkylene is a polyoxypropylene.

5 11. The hematopoietic growth factor delivery composition of Claim 9, wherein the polyoxyalkylene is a polyoxyethylene.

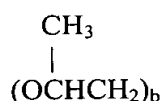
12. The hematopoietic growth factor delivery composition of claim 1, wherein the first biocompatible polymer is a polyoxyalkylene block copolymer comprising at least one block of a first polyoxyalkylene and at least one block of a second polyoxyalkylene.

10 13. The hematopoietic growth factor delivery composition of claim 12, wherein the first polyoxyalkylene is a polyoxyethylene and the second polyoxyalkylene is a polyoxypropylene.

14. The hematopoietic growth factor delivery composition of claim 13, wherein the polyoxyethylene comprise at least 70 weight percent of the polymer.

15 15. The hematopoietic growth factor delivery composition of claim 12, wherein the polyoxypropylene has the formula $(C_3H_6O)_b$, where b is an integer.

16. The hematopoietic growth factor delivery composition of claim 12, wherein the polyoxypropylene has the formula



where b is an integer.

17. The hematopoietic growth factor delivery composition of Claim 1, wherein the second biocompatible polymer has a weight average molecular weight of at least 5,000 Daltons.

18. The hematopoietic growth factor delivery composition of Claim 17, wherein the second biocompatible polymer comprises a saccharide-based polymer.

19. The hematopoietic growth factor delivery composition of Claim 17, wherein the second biocompatible polymer comprises a cellulosic polymer.

30 20. The hematopoietic growth factor delivery composition of Claim 19, wherein the cellulosic polymer comprises methylcellulose.

21. The hematopoietic growth factor delivery composition of Claim 19, wherein the cellulosic polymer comprises hydroxymethylcellulose.

22. The hematopoietic growth factor delivery composition of Claim 19, wherein the cellulosic polymer comprises hydroxyethylcellulose.

23. The hematopoietic growth factor delivery composition of Claim 19, wherein the cellulosic polymer comprises hydroxypropyl cellulose.

5 24. The hematopoietic growth factor delivery composition of Claim 19, wherein the cellulosic polymer comprises hydroxypropyl methylcellulose.

25. The hematopoietic growth factor delivery composition of Claim 19, wherein the cellulosic polymer comprises carboxymethylcellulose.

10 26. The hematopoietic growth factor delivery composition of Claim 19, wherein the second biocompatible polymer comprises ethyl hydroxyethyl cellulose.

27. The hematopoietic growth factor delivery vehicle of Claim 17, wherein the second biocompatible polymer comprises a second biocompatible polymer.

15 28. The hematopoietic growth factor delivery vehicle of Claim 17, wherein the second biocompatible polymer comprises at least one of carrageenan and a derivative of carrageenan.

29. The hematopoietic growth factor delivery vehicle of Claim 17, wherein the second biocompatible polymer comprises at least one of algin, alginic acid and an alginate.

30. The hematopoietic growth factor delivery vehicle of Claim 17, wherein the second biocompatible polymer comprises an alginate.

20 31. The hematopoietic growth factor delivery vehicle of Claim 17, wherein the pycocolloid comprises agar.

32. The hematopoietic growth factor delivery vehicle of Claim 17, wherein the second biocompatible polymer comprised a starch.

25 33. The hematopoietic growth factor delivery vehicle of Claim 1, wherein the second biocompatible polymer has a weight average molecular weight of at least 10,000 Daltons.

34. The hematopoietic growth factor delivery vehicle of Claim 1, wherein the liquid vehicle is an aqueous liquid.

30 35. The hematopoietic growth factor delivery composition of Claim 1, wherein the hematopoietic growth factor comprises EPO.

36. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises G-CSF.

37. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises IL-5.

38. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises TPO.

39. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises GM-CSF.

5 40. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises IL-3.

41. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises IL-6.

10 42. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises IL-11.

43. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises LIF.

44. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises FGF basic.

15 45. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises SCF.

46. The hematopoietic growth factor delivery vehicle of Claim 1, wherein hematopoietic growth factor comprises Flt3-L.

20 47. The hematopoietic growth factor delivery vehicle of Claim 1, comprising an antigen.

48. The hematopoietic growth factor delivery composition of claim 1, wherein the liquid vehicle comprises from 60 weight percent to 96 weight percent of the composition, the hematopoietic growth factor comprises from 0.00000001 weight percent to 0.000005 weight percent of the composition, the first biocompatible polymer comprises from 5 weight percent to 33 weight percent of the composition and the second biocompatible polymer comprises from 0.1 weight percent to 5 weight percent of the composition.

49. The hematopoietic growth factor delivery composition of claim 1, wherein the composition is contained within an injection device that is actuatable to administer the composition to the host by injection.

30 50. A method of packaging and storing the hematopoietic growth factor delivery composition of claim 6, comprising placing the composition in a container when the composition is in the form of the flowable medium and, after the placing, raising the temperature of the composition in the container to convert the composition to the gel for storage, wherein the gel form in the container can be converted back to the form of a flowable

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medium for administration to the host by lowering the temperature of the composition in the container.

51. The hematopoietic growth factor delivery composition of claim 1, wherein the host is a mammal.

5 52. The hematopoietic growth factor delivery composition of claim 1, wherein the host is a human.

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